Amendments to the Specification:

Please amend the specification as follows:

Please replace the title beginning on page 1, line 1, with the following amended title:

~~VOLTAGE MODE, HIGH ACCURACY BATTERY CHARGER~~ CHARGING CIRCUIT FOR CONTROLLING A CHARGING PARAMETER OF A RECHARGEABLE BATTERY

Please replace the paragraph beginning on page 1, line 3, with the following amended paragraph:

This application is a continuation of, and claims priority to, application Serial No. 10/328,466, filed December 23, 2002, now U.S. Patent No. 6,611,129, which is a continuation of application Serial No. 09/948,828, filed September 7, 2001, now U.S. Patent No. 6,498,461, which claims priority to US Provisional Application Serial No. 60/313,260, all of which are hereby incorporated by reference.

Please replace the paragraph beginning on page 3, line 8, with the following amended paragraph:

Figure 1 depicts a voltage mode battery charger system 10 according to one exemplary embodiment. The system 10 includes a voltage mode battery charger circuit 12 for charging one or more batteries 16 using a DC source 14. The DC source may be an AC/DC adapter or other power supply. Circuit 12 operates to control the duty cycle of the Buck converter circuit 18 (comprising an inductor and capacitor, as is well understood in the art) via switches 20, to control the amount of charging power delivered to the battery 16. As an overview, circuit 12

controls the duty cycle of the Buck converter 18 by monitoring the source current, the battery charging current (current mode) and the battery voltage (voltage mode). Battery charging current is sensed across the sense resistor (or impedance) Rsch. Instead of sensing the current through the inductor (as in conventional current mode topologies), the present invention uses a voltage mode topology by sensing the current across Rsch. In this manner, and by utilizing both battery current control and voltage control, the present invention achieves more accurate charging of the battery towards the end of the charging cycle, and provides more accurate charge termination than can be achieved with conventional current mode charging topologies. The details of the system 10 are described below.

Please replace the paragraph beginning on page 5, line 13, with the following amended paragraph:

The current control section (circuit) includes a sense amplifier 26 and a transconductance amplifier 28. The sense amplifier monitors the battery charging current across the sense impedance Rsch 24, and generates a signal proportional to battery charge current. The transconductance amplifier 28 receives the output of the sense amplifier 26 and compares that signal with a programmed (desired) battery current signal Ich. As a general matter, the inputs of the transconductance amplifier 28 are voltage signals, and the output is a proportional current signal. The output of the transconductance amplifier is the current control signal 62, which is proportional to the amount the battery charging current exceeds the programmed Ich. [[Ich]] Current control signal 62 is zero until the battery charging current exceeds the programmed current value Ich. The programmed value Ich is set to according to the particular battery type

and requirements, for example set to charge a conventional LiIon battery, as is well understood in the art.

Please replace the paragraph beginning on page 8, line 10, with the following amended paragraph:

The power control section (circuit) includes a sense amplifier 34 and a transconductance amplifier 36. The power control section is provided to reduce the duty cycle of the Buck converter, and thereby reduce the charging current delivered to the battery if the DC source needs to deliver more power to an active system 72 (e.g., portable electronic device) attached to the source. The active system is coupled in parallel to the charging system 10 across the sense resistor Rsac. Since the total amount of power provided by the source 14 is fixed, in a well-designed system the load requirements of the active system and battery charging circuit are balanced. The power control section ensures that the active system always takes priority (in terms of power requirements) by reducing the charging current to meet the demands of the active system. Accordingly, the power control section generates a power control signal 66 proportional to the amount of power required by the battery charger and the active system exceeds the threshold Iac_lim. Iac_lim is typically the maximum that can be delivered by the adapter source 14. For example, the source 14 may be simultaneously supplying power to an active system ~~(not shown)~~ and charging current to the battery. If the portable system requires more power, charging current to the battery is accordingly reduced to meet the demands of the system. The source 14 is generally defined as a DC power source, as may be supplied from an AC/DC adapter.

Please replace the paragraph beginning on page 9, line 5, with the following amended paragraph:

The sense amplifier 34 monitors the total adapter current delivered by the source 14 across the sense impedance Rsac 22. The total adapter (source) current includes the system current (i.e., current delivered to a portable system (not shown) connected to the source 14) and the charging current controlled by the battery charger circuit 12 (which is a measure of the charging current divided by duty cycle of the Buck converter 18). The signal across the sense resistor Rsac is a signal proportional to the total adapter current. The transconductance amplifier 36 receives the output of the sense amplifier 34 and compares that signal with a power threshold signal Iac_lim. Thus, if the signal across the sense resistor is larger than Iac_lim, this indicates that the system is requiring more power, and accordingly battery charging current is to be reduced. Of course, this limit signal may be fixed, or may be adjusted based on the dynamic power requirements of the system and/or changes in the source. The output of the transconductance amplifier is the power control signal 66, which is zero until the power required by the battery charger and the active system exceeds the threshold value Iac_lim.

Please replace the paragraph beginning on page 10, line 14, with the following amended paragraph:

Thus, with present invention, the duty cycle of the PWM signal can be adjusted using ~~a differential~~ the compensation capacitor. In the exemplary embodiments, adjusting the PWM is accomplished dynamically as a function of battery charging current, battery voltage and/or system power requirements. The topology depicted in Figure 1 is a voltage mode topology. Voltage mode topology means that the sense resistor Rsch is placed outside of the Buck

converter, and thus the current across this resistor is a DC value (without ripple). Those skilled in the art will recognize numerous modifications to the present invention. These and all other modifications as may be apparent to one skilled in the art are deemed within the spirit and scope of the present invention, only as limited by the appended claims.